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- URTICA gracilis (*Aecidium urticae* Schum.), *see* *Puccinia caricis* (Schum.) Reb. from *Carex riparia*. [Kellerman]
- URTICA gracilis (*Aecidium urticae*), *see* *Puccinia caricis* (Schum.) Reb. from *Carex stricta*. [Arthur]
- URTICA gracilis (*Aecidium urticae* Schw.), *see* *Puccinia caricis* (Schum.) Reb. from *Carex stricta*. [Kellerman]
- URTICA gracilis (*Puccinia caricis* (Schum.) Reb. aecidia), *see* *Puccinia caricis* (Schum.) Reb. from *Carex stricta* Lam. [Arthur]
- VERBENA stricta Vent. (*Puccinia vilfae* A. & H. aecidia [*Aecidium verbenicola* K. & S.]), *see* *Puccinia vilfae* A. & H. [*P. verbenicola* (K. & S.) Arth. n. n.] from *Sporobolus longifolius* (Torr.) Wood. [Arthur]
- VERBENA stricta (*Puccinia vilfae* A. & H. uredo on *Sporobolus longifolius*), *see* *Puccinia vilfae* A. & H. aecidiospores (*Aecidium verbenicola* K. & S.) from *Verbena stricta*. [Arthur]
- VERBENA urticifolia L. (*Puccinia vilfae* A. & H. aecidia (*Aecidium verbenicola* K. & S.]), *see* *Puccinia vilfae* A. & H. [*P. verbenicola* (K. & S.) Arth.] from *Sporobolus longifolius* (Torr.) Wood. [Arthur]
- WASHINGTONIA claytoni (*Puccinia osmorrhizae* teleuto [?]), *see* *Aecidium osmorrhizae* Pk. from *Washingtonia claytoni*. [Kellerman]
- WASHINGTONIA claytoni (*Osmorrhiza brevistylis*) [*Puccinia osmorrhizae* teleuto] on *Chaerophyllum procumbens* and (?) on *Washingtonia claytoni*, *see* *Aecidium osmorrhizae* Pk. from *Washingtonia claytoni*. [Kellerman]
- Wheat, *see* *Triticum vulgare*.

SUMMARY OF ALTERNATE FORMS.

- Aecidium albiperidia* Arth.—*Puccinia albiperidia* Arth.
- Aecidium asteratum* Schw.—*Puccinia caricis-asteris* Arth.
- Aecidium berberidis* Pers.—*Puccinia poculiformis* (Jacq.) Wettst.
- Aecidium calystegiae* Desm.—*Puccinia convolvuli* Cast.
- Aecidium caulicolum* Kellerm.—*Puccinia caulicola* Tr. & Gall.
- Aecidium cirsii-lanceolati* Schroet.—*Aecidium cirsii-lanceolati* Kellerm.

- Aecidium ellisii* Tr. & Gall.—*Puccinia subnitens* Diet.
Aecidium erigeronatum Schw.—*Puccinia caricis-erigerontis* Arth.
Aecidium euphorbiae Am. Auct.—*Uromyces euphorbiae* C. & P.
Aecidium fraxini Schw.—*Puccinia fraxinata* (Lk.) Arth.
Aecidium on *Helianthus*—*Puccinia helianthi* Schw.
Aecidium hibisci Schw.—*Puccinia hibisciata* (Schw.) Kellerm. (*P. muhlenbergiae* Arth. & Holw.)
Aecidium hynoideum B. & C.—*Puccinia hydnoidea* (B. & C.) Arth.
Aecidium impatientis Schw.—*Puccinia impatientis* (Schw.) Arth. (*P. rubigo-vera* Auct. on *Elymus virginicus*)
Aecidium jamesianum Pk.—*Puccinia jamesiana* (Pk.) Arth. (*P. bartholomaei* Diet.)
Aecidium on *Larix decidua*, *see* *Caeoma* on *Larix decidua*.
Aecidium lateripes Kellerm.—*Puccinia lateripes* B. & Rav.
Aecidium leucospermum B. & C.—*Uromyces lespedezae-procumbentis* (Schw.) Curt.
Aecidium lycopi Ger.—*Puccinia angustata* Pk.
Aecidium oenotherae Pk., *see* *Aecidium peckii* DeToni.
Aecidium pammellii Trel.—*Puccinia panici* Diet.
Aecidium peckii DeToni, (*Ae. oenotherae* Pk.)—*Puccinia peckii* (DeToni) Kellerm. (*P. caricis* Auct. p. p.)
Aecidium pentstemonis Schw.—*Puccinia andropogonis* Schw.
Aecidium plantaginis Ces. (?) on *Plantago rugelii* Dec.—*Uromyces aristidae* E. & E.
Aecidium pteleae B. & C.—*Puccinia windsoriae* Schw.
Aecidium pustulatum Curt.—*Puccinia pustulata* (Curt.) Arth.
Aecidium [ranunculacearum (?)] on *Anemone canadensis* L.—*Puccinia simillima* Arth.
Aecidium ranunculi Schw.—*Puccinia eatoniae* Arth.
Aecidium rhamni Pers.—*Puccinia rhamni* (Pers.) Wettst. (*P. coronata* Corda.)
Aecidium rubellum Pers.—*Puccinia phragmitis* Schum.
Aecidium sambuci Schw.—*Puccinia sambuci* (Schw.) Arth. (*P. atkinsoniana* Diet., *P. bolleyana* Sacc.)
Aecidium smilacis Schw.—*Puccinia amphigena* Diet.
Aecidium solidaginis Schw.—*Puccinia caricis-solidaginis* Arth.

- Aecidium* on *Solidago*—*Uromyces solidagini-caricis* Arth.
Aecidium on *Strophostyles helvola*—*Uromyces phaseoli* (Pers.) Wint.
Aecidium on *Trifolium*, *see* *Uromyces trifolii* (A. & S.) Wint.
Aecidium urticae Schum.—*Puccinia caricis* (Schum.) Reb.
Aecidium verbenicola K. & S.—*Puccinia vilfae* A. & H.
Caeoma (*Aecidium*) *erigeronatum* Schw., *see* *Aecidium erigeronatum* Schw.
Caeoma (*Aecidium*) *hibisciatum* Schw., *see* *Puccinia hibisciata* Schw.) Kellerm.
Caeoma on *Larix decidua*—*Melampsora medusae* Thüm. [*M. populina* Am. Auct.]
Caeoma miniata Am. Auct.—*Phragmidium speciosum* Fr.
Caeoma nitens Schw., *see* *Gymnoconia interstitialis* (Schlecht.) Lagh.
Caeoma ulmariae Thüm.—*Triphragmium ulmariae* (Schum.) Lk.
Gymnoconia interstitialis (Schlecht.) Lagh., *aecidium* (*Caeoma nitens* Schw.), and *teleuto* (*Puccinia peckinana* Howe); *autoecious*.
Gymnosporangium biseptatum Ell.—*Roestelia botryapites* Schw.
Gymnosporangium clavariaeforme (Jacq.) Rees.—*Roestelia lacerata* (Sow.) Fr.
Gymnosporangium clavipes Cke. & Pk.—*Roestelia aurantiaca* Peck.
Gymnosporangium conicum Rees.—*Roestelia cornuta* (Ehr.) Fr.
Gymnosporangium ellisii (Berk.) Farl.—*Roestelia transformans* Ellis (?)
Gymnosporangium globosum Farl.—*Roestelia globosum* ("lacerata z") Thaxter.
Gymnosporangium macropus Lk.—*Roestelia pyrata* Thaxter.
Gymnosporangium nidus-avis Thaxter—*Roestelia nidus-avis* Thaxter.
Melampsora medusae Thüm [*M. populina* Am Auct.]—*Caeoma* on *Larix decidua*.
Melampsora populina Am. Auct., *see* *Melampsora medusae* Thüm.
Phragmidium speciosum Fr.—*Caeoma miniata* Am. Auct.
Puccinia albiperidia Arth., *aecidium* [*albiperidium* Arth.] *uredo* and *teleuto*; *autoecious*.

- Puccinia americana* Lagh., *see* *Puccinia andropogonis* Schw.
Puccinia amphigena Diet.—*Aecidium smilacis* Schw.
Puccinia andropogonis Schw. (*P. americana* Lagh.)—*Aecidium pentstemonis* Schw.
Puccinia angustata Pk.—*Aecidium lycopi* Ger.
Puccinia atkinsoniana Diet., *see* *Puccinia sambuci* (Schw.) Arth.
Puccinia bartholomaei Diet., *see* *Puccinia jamesiana* (Pk.) Arth.
Puccinia bolleyana Sacc., *see* *Puccinia sambuci* (Schw.) Arth.
Puccinia caricis (Schum.) Reb.—*Aecidium urticae* Schum.
Puccinia caricis Am Auct. p. p. (*P. peckii* [DeToni] Kellerm.), *see* *P. peckii* (DeToni) Kellerm.
Puccinia caricis-asteris Arth.—*Aecidium asteratum* Schw.
Puccinia caricis-erigerontis Arth.—*Aecidium erigeronatum* Schw.
Puccinia caricis-solidaginis Arth.—*Aecidium solidaginis* Schw.
Puccinia caulicola Tr. & Gall., *aecidium* [*caulicolum* Kellerm.], *uredo* and *teleuto*; *autoecious*.
Puccinia cirsii-lanceolati Schroet., *aecidium* [*cirsii-lanceolati* Kellerm.] *uredo* and *teleuto*; *autoecious*.
Puccinia convolvuli Cast., *aecidium* [*calystegiae* Desm.] *uredo* and *teleuto*; *autoecious*.
Puccinia coronata Corda, *see* *Puccinia rhamni* (Pers.) Wettst.
Puccinia eatoniae Arth.—*Aecidium ranunculi* Schw.
Puccinia fraxinata (Lk.) Arth.—*Aecidium fraxini* Schw.
Puccinia graminis, *see* *Puccinia poculiformis* (Jacq.) Wettst.
Puccinia helianthi Schw., *aecidium* [*Caeoma helianthi* Schw.], *uredo* and *teleuto*; *autoecious*.
Puccinia hibisciata (Schw.) Kellerm. (*P. muhlenbergiae* Arth. & Hol.)—*Aecidium hibisciatum* Schw.
Puccinia hydnoidea (B. & C.) Arth.—*Aecidium hydnoideum* B. & C.
Puccinia impatientis (Schw.) Arth. (*P. rubigo-vera* Auct. on *Elymus virginicus*)—*Aecidium impatientis* Schw.
Puccinia jamesiana (Pk.) Arth. (*P. bartholomaei* Diet.)—*Aecidium jamesianum* Pk.
Puccinia lateripes B. & Rav., *aecidium* [*lateripes* Kellerm.] *uredo* and *teleutospores*; *autoecious*.
Puccinia muhlenbergiae Arth. & Hol., *see* *Puccinia hibisciata* (Schw.) Kellerm.

- Puccinia panici* Diet.—*Aecidium pammellii* Trel.
Puccinia peckiana Howe, *see* *Gymnoconia interstitialis* (Schlecht.) Lagh.
Puccinia peckii (DeToni) Kellerm. (*P. caricis* Am. Auct. p. p.)
—*Aecidium peckii* DeToni (*Ae. oenotherae* Pk.).
Puccinia peridermiospora (E. & T.) Arth., *see* *Puccinia fraxinata* (Lk.) Arth.
Puccinia phragmitis (Schum.) Körn.—*Aecidium rubellum* Pers.
Puccinia poculiformis (Jacq.) Wettst.—*Aecidium berberidis* Pers.
Puccinia pustulata (Curt.) Arth.—*Aecidium pustulatum* Curt.
Puccinia rhamni (Pers.) Wettst. (*P. coronata* Corda)—*Aecidium rhamni* Pers.
Puccinia rubigo-vera Am. Auct, on *Elymus virginicus*, *see* *Puccinia impatientis* (Schw.) Arth.
Puccinia sambuci (Schw.) Arth. (*P. atkinsoniana* Diet., *P. bolleyana* Sacc.)—*Aecidium sambuci* (Schw.) Arth.
Puccinia simillima Arth.—*Aecidium ranunculacearum* (?) on *Anemone canadensis* L.
Puccinia subnitens Diet.—*Aecidium ellisii* Tr. & Gall.
Puccinia vilfae A. & H.—*Aecidium verbenicola* K. & S.
Puccinia windsoriae Schw.—*Aecidium pteleae* B. & C.
Roestelia aurantiaca Pk.—*Gymnosporangium clavipes* Cke. & Pk.
Roestelia botryapites Schw.—*Gymnosporangium biseptatum* Ell.
Roestelia cornuta (Ehr.) Fr.—*Gymnosporangium concium* Rees.
Roestelia globosum ("lacerata z") Thaxter—*Gymnosporangium globosum* Farl.
Roestelia lacerata (Sow.) Fr.—*Gymnosporangium clavariae-forme* (Jacq.) Rees.
Roestelia "lacerata z," *see* *Roestelia globosum*.
Roestelia nidus-avis Thax.—*Gymnosporangium nidus-avis* Thax.
Roestelia pyrata Thaxter—*Gymnosporangium macropus* Lk.
Roestelia transformans Ell. (?) —*Gymnosporangium ellisii* (Berk.) Farl.
Triphragmium ulmariae (Schum.) Lk.—*Caeoma ulmariae* Thüm.
Uromyces aristidae E. & E.—*Aecidium plantaginis* Ces. (?) on *Plantago rugelli* Dec.
Uromyces solidagini-caricis Arth.—*Aecidium* on *Solidago*.

Uromyces euphorbiae C. & P.—*Aecidium euphorbiae* Am. Auct.

Uromyces lespedezae-procumbentis (Schw.) Curt., *aecidium* [leucospermum B. & C.], uredo and teleuto; autoecious.

Uromyces phaseoli (Pers.) Wint., *aecidium*, uredo and teleuto; autoecious.

Uromyces trifolii (A. & S.) Wint. *aecidium*, uredo and teleuto; autoecious.

NOTES FROM MYCOLOGICAL LITERATURE. IX.

W. A. KELLERMAN.

THE FIRST PART OF A KEY TO THE NORTH AMERICAN SPECIES OF INOCYBE — Sections Squarrosae and Lacerae, — is given by F. S. Earle in *Torrey*, 3:168-170, Nov. 1903.

THE FORM AND STRUCTURE OF THE MYCODOMATIA of *Myrica cerifera* L., is published in the Proceedings of the Academy of Natural Sciences of Philadelphia, 55:352-362, Pl. XVI-XVII, 1903, by John W. Harshberger. This is a new host for *Frankia brunchorstii* Möller; the author describes his investigations and observations, and says it is probable that this species "is more in the nature of an endotrophic mycorrhiza, to be placed intermediate between the ectotrophic mycorrhiza found on the Indian Pipe *Monotropa*, and the typical endotrophic mycorrhiza found in *Thismia* and certain other plants, where a definite relationship is established between the nucleus of the host and the fungous hyphae." A chronological Bibliographical Index of 18 items, concludes the article. The hosts on which *Mycodomatia* have been reported to date are: *Alnus glutinosa*, *A. incana*, *A. serrulata*, *A. undulata*, *Elaeagnus*, *Hippophae rhamnoides*, *Shepherdia*, [*Frankia alni* (Möller) Atks.]; *Myrica gale*, *M. cerifera* [*F. brunchorstii* Möller]; *Ceanothus americanus* [*F. ceanothi* Atks.].

NUCLEAR DIVISIONS AND NUCLEAR FUSION IN COLEOSPORIUM SONCHI-ARVENSIS Lév., R. J. Holden and R. A. Harper, *Trans. Wisc. Acad. Sci. Arts and Let.* 14:63-82, Pl. I, II, Sept. 1903 (separate), outlines the study of the nuclear phenomena in the rusts by previous investigators, and details important investigations by the authors which agree in general with previous results. In regard to the life history of the *Coleosporium* the authors say: "From the teleutospore to the sporidium we find uni-nucleated cells; from the sporidium to the teleutospore we have bi-nucleated cells. . . . There is as yet no evidence of any proper cell fusion in the rusts though the fusion of the nuclei in the teleutospore has the essential characteristics of a sexual fertilization in the origin of the nuclei and in the behavior of the teleutospore after fusion as described above. . . . Sexual reproduction in the